

Prostatitis

Common

Most common urological problem in men < 50 yrs

Third most common problem in men > 50yrs

Represents 3% to 12% of male outpatient visits to urologists

All ages affected

Worldwide distribution

Aetiology poorly understood

Risk of bacterial colonisation with pathogenic bacteria

UTI

Epididymitis

Dysfunctional voiding/bladder outflow obstruction

Intraprostatic ductal reflux

Transurethral surgery

Indwelling urethral catheter

Unprotected anal intercourse

Genetic susceptibility

Pathology

Chronic inflammation common on histology (usually lymphocytic infiltrates around acini); seen in ~40% pathology specimens: not necessarily indicative of prostate disease

Infiltrates within glandular epithelium and in lumen rarely seen in asymptomatic patients – often in chronic prostatitis and occ. BPH

Corpora amylacea a/w chronic prostatitis – composed of urine constituents indicating possible role for intraprostatic reflux – may also form a protective environment for bacteria (biofilm formation)

Granulomatous inflammation not typically seen – usually after surgery or BCG; rarely due to active TB

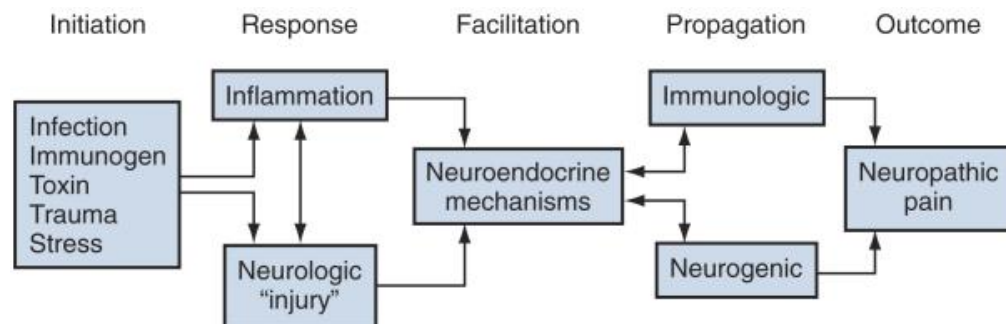
Chronic non-infectious prostatitis a/w activated immune system
(?autoimmune disease triggered by initiator)

Non-specific IgG and IgM

Complement

IL-10 and TNF- α

Current popular concept indicates that CPPS is caused by an interrelated cascade of inflammatory, immunologic, neuroendocrine, and neuropathic mechanisms that begin with an initiator in a genetically or anatomically susceptible man.



Microbiology

Gram negative organisms

E. coli		65-80%
Pseudomonas	}	
Klebsiella	}	10-15%
Proteus	}	

Gram positive organisms

Enterococcus	5-10%
CN staphylococcus	Occasional

Chlamydia trachomatis

Controversial

Up to one third have antibodies to chlamydia

Attempts to localise infection to prostate has led to very conflicting results - most studies use culture or FISH - few studies utilise NAAT

Ureaplasma urealyticum

Limited evidence; at best only ~ 10% infected with ureaplasma

Classification

<i>Traditional</i>	<i>National Institutes of Health</i>	<i>Description</i>
Acute bacterial prostatitis	Category I	Acute infection of the prostate gland
Chronic bacterial prostatitis	Category II	Chronic infection of the prostate gland
	Category III Chronic Pelvic Pain Syndrome (CPPS)	Chronic genitourinary pain in the absence of uropathogenic bacteria localized to the prostate gland employing standard methodology
Nonbacterial prostatitis	Category IIIA (Inflammatory CPPS)	Significant number of white blood cells in expressed prostatic secretions, post-prostatic massage urine sediment (VB3), or semen
Prostatodynia	Category IIIB (Noninflammatory CPPS)	Insignificant number of white blood cells in expressed prostatic secretions, post-prostatic massage urine sediment (VB3), or semen
	Asymptomatic Inflammatory Prostatitis (AIP)	White blood cells (and/or bacteria) in expressed prostatic secretions, post-prostatic massage urine sediment (VB3), semen, or histologic specimens of prostate gland

Presentation

Acute bacterial prostatitis

Pain, mixed LUTS and systemic illness

5% develop chronic bacterial infection

Chronic bacterial prostatitis

Commonly history of recurrent UTIs

Typically asymptomatic in between episodes

Chronic pelvic pain syndrome*

Pain – **perineal**, **suprapubic**, groin, testes, penis, lower back

Ejaculatory pain characteristic

Mixed LUTS

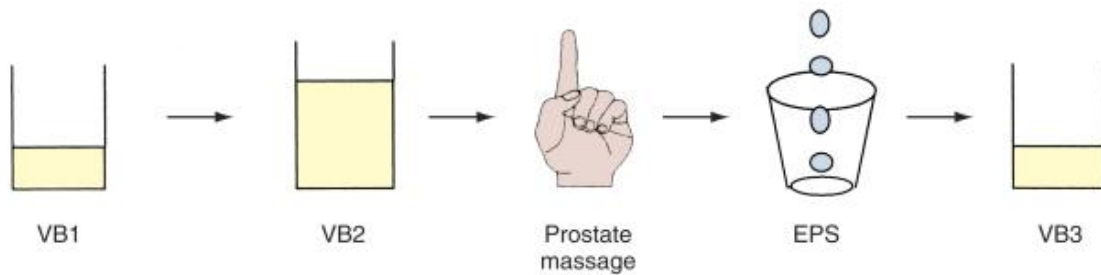
Occasionally ED and psychosexual disturbance

* symptom assesment using validated NIH-chronic prostate symptom index.

Very useful research tool and to determine baseline symptoms score (see page 5; essentially 3 domains – pain (4), LUTS (2), QOL (3).

Evaluation

Traditional classification described by Drach (1978) following description of the 4 glass test by Meares and Stamey (1968).



VB = voided bladder

VB1 = urethral specimen – first 10 ml

VB2 = MSU

VB3 = post-massage specimen – first 10 ml after massage

Type II (chronic bacterial prostatitis) diagnosed if 10 fold increase in bacteria when EPS/VB3 compared with VB1/VB2 [NB. if MSU positive, requires treatment of male UTI, followed by repeat localisation]

Type IIIa (chronic inflammatory prostatitis) diagnosed if wbcs identified in EPS/VB3 or semen specimen (NIH criteria)

Type IIIb (chronic non-inflammatory prostatitis) diagnosed if no bacteria or wbcs identified

Alternative is simplified 2 glass test (Weidner 1985), recommended by Nickel. Good evidence that VB1 can be excluded provided no penile discharge. Also VB3 at least as effective at detecting inflammation as EPS (Kreiger 2000). Addition of semen microscopy and culture appears to increase the frequency of men diagnosed with type IIIa prostatitis

However many physicians do not perform localisation tests because:

Chronic bacterial prostatitis rarely identified (4.4% of cases)

Classification does not predict response to antibiotics

Pre-treatment with antibiotics common making classification difficult

Other tests

(i) Urodynamics

Value of urodynamics controversial. Some evidence that patients with CPPS have dysfunctional voiding (bladder neck obstruction, acontractility, detrusor overactivity, hypercontractile EUS) - ? cause or effect.

(ii) Cystoscopy

No apparent value for flexible cystoscopy

(iii) TRUS

Controversial. Prostatic calculi not necessarily indicative of prostate disease. May be useful to exclude midline prostatic cysts in cases of equivocal DRE or reduced ejaculate volume. No role for prostate biopsy

Management

(i) Acute bacterial prostatitis

Management straightforward

Antibiotics

In acutely inflamed prostate virtually all antibiotics achieve reasonable penetration

Typically IV initially

7mg/kg gentamicin od and 500mg amoxycillin tds

Convert to oral antibiotic when temperature controlled

Ciprofloxacin recommended due to high prostate penetration (zwitterion)

Duration unknown; 2-4 weeks recommended

5% risk of developing chronic bacterial prostatitis

TRUS +/- TUR prostate abscess if failing to respond

(ii) Chronic bacterial prostatitis

Antibiotic therapy indicated

Early studies showed variable efficacy for 3 months TMP-SMX

Recently most studies have shown good efficacy for quinolones.

Ciprofloxacin most studies, although levofloxacin has activity against GPB and atypical bacteria

Macrolides may be considered when chlamydia implicated

Best evidence from Naber – examined all available studies: 63-76% bacterial eradication with 28 days cipro 500mg bd

6-12 weeks therapy recommended by Nickel et al; 4-6 weeks by EAU

For persistent cases, possible role for repeated prostate massage (three times a week for 6 weeks and concomitant Abx)

(iii) CP/CPPS

Limited evidence

a) Antibiotics

Older studies suggest that up to 40% of Type III patients appear to benefit from Abx despite absence of bacteria

Short course (4 weeks) of antibiotics recommended by EAU*

Best evidence (2 multicentre PC-RCTs in heavily pre-Rx patients; Nickel 2003 and Alexander 2004) showed no benefit for 6 weeks of either ciprofloxacin or levofloxacin respectively

* one month of ciprofloxacin 500mg bd ~ £7

b) Alpha-blockers

Confirmed benefit in treatment naïve men with recent development of moderate to severe symptoms

4 RCTs classify men according to NIH and used NIH-CPSI for patient assessment: overall 42% of patients benefitted from Rx, although clinical modest symptom score improvement

c) Anti-inflammatory drugs

Limited evidence for nimesulide, high dose steroids and pentosan polysulfate but studies small.

Some evidence for rofecoxib 50mg (Nickel 2003) but currently not recommended (cardiac complications)

d) Phytotherapy

Promising data for Saw palmetto but more studies required

NIH-Chronic Prostatitis Symptom Index (NIH-CPSI)

Pain or Discomfort

1. In the last week, have you experienced any pain or discomfort in the following areas?
- | | Yes | No |
|--|---------------------------------------|---------------------------------------|
| a. Area between rectum and testicles (perineum) | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |
| b. Testicles | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |
| c. Tip of the penis (not related to urination) | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |
| d. Below your waist, in your pubic or bladder area | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |

2. In the last week, have you experienced:

- | | Yes | No |
|--|---------------------------------------|---------------------------------------|
| a. Pain or burning during urination? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |
| b. Pain or discomfort during or after sexual climax (ejaculation)? | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₀ |

3. How often have you had pain or discomfort in any of these areas over the last week?

- ☐₀ Never
☐₁ Rarely
☐₂ Sometimes
☐₃ Often
☐₄ Usually
☐₅ Always

4. Which number best describes your AVERAGE pain or discomfort on the days that you had it, over the last week?

- | | | | | | | | | | | |
|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> ₀ | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ | <input type="checkbox"/> ₃ | <input type="checkbox"/> ₄ | <input type="checkbox"/> ₅ | <input type="checkbox"/> ₆ | <input type="checkbox"/> ₇ | <input type="checkbox"/> ₈ | <input type="checkbox"/> ₉ | <input type="checkbox"/> ₁₀ |
| NO PAIN | | | | | | | | | | PAIN AS BAD AS YOU CAN IMAGINE |

Urination

5. How often have you had a sensation of not emptying your bladder completely after you finished urinating, over the last week?

- ☐₀ Not at all
☐₁ Less than 1 time in 5
☐₂ Less than half the time
☐₃ About half the time
☐₄ More than half the time
☐₅ Almost always

6. How often have you had to urinate again less than two hours after you finished urinating, over the last week?

- ☐₀ Not at all
☐₁ Less than 1 time in 5
☐₂ Less than half the time
☐₃ About half the time
☐₄ More than half the time
☐₅ Almost always

Impact of Symptoms

7. How much have your symptoms kept you from doing the kinds of things you would usually do, over the last week?

- ☐₀ None
☐₁ Only a little
☐₂ Some
☐₃ A lot

8. How much did you think about your symptoms, over the last week?

- ☐₀ None
☐₁ Only a little
☐₂ Some
☐₃ A lot

Quality of Life

9. If you were to spend the rest of your life with your symptoms just the way they have been during the last week, how would you feel about that?

- ☐₀ Delighted
☐₁ Pleased
☐₂ Mostly satisfied
☐₃ Mixed (about equally satisfied and dissatisfied)
☐₄ Mostly dissatisfied
☐₅ Unhappy
☐₆ Terrible

Scoring the NIH-Chronic Prostatitis Symptom Index Domains

Pain: Total of items 1a, 1b, 1c, 1d, 2a, 2b, 3, and 4 = _____

Urinary Symptoms: Total of items 5 and 6 = _____

Quality of Life Impact: Total of items 7, 8, and 9 = _____

Epididymo-orchitis

Isolated orchitis typically viral in origin; much more commonly occurs secondary to acute epididymitis

Acute epididymitis common

Causes (surgical sieve)

Infective

Bacterial

UTI

STI

TB

Haematogenous

Viral

paramyxovirus

Parasite

filariasis

Traumatic

Autoimmune

Inflammatory

Behcet's disease

Idiopathic

Organisms

Men <35 yrs*

N. Gonorrhoea and c. trachomatis

Men >35 yrs*

Coliforms (E coli, Klebsiella, Pseudomonas etc.)

Anal intercourse

E coli and H influenza

* Berger 1998

Diagnosis

VB1 for culture/NAAT

Urethral swab for gram stain**

MSU

Doppler USS or scrotal exploration in selected cases

** gram positive diplococci = N gonorrhoea; wbcs only – two thirds = chlamydia

Management

2-4 weeks of oral antibiotics (duration unclear)

Men <35

Ciprofloxacin 500mg bd and doxycycline 200mg od
Doxycycline good vs. chlamydia, ciprofloxacin good vs. GNB. Alternatively levofloxacin 500mg day monotherapy – has better activity than ciprofloxacin vs. GPB and atypical. Doxycycline not active and ciprofloxacin not great vs. gonococcus. Therefore if patient not responding or if STI suspected (gonococcus more common in homosexual population), single dose of oral cefixime 400mg recommended

Remember contact tracing

Men >35

Ciprofloxacin alone

Epididymectomy effective in ~50% of patients with chronic orchalgia

Complications

Abscess formation

Testicular infarction

Testicular atrophy

Chronic epididymitis (~15% - typically undertreated)

Infertility (rare)

Mumps orchitis

70:30 rule

Paramyxovirus

Incubation period 2-3 weeks

30% subclinical; 70% clinical parotid swelling and high fever

30% unilateral parotid swelling; 70% bilateral.

30% of post-pubertal males get orchitis. Usually approximately 1 week after.

Of those 70% unilateral, 30% bilateral.

30% of affected testes become atrophic. Therefore sterility rare.

Diagnosis

Diagnosis is clinical, and laboratory tests are unnecessary. The virus can be isolated from saliva or mouth washings in primary monkey kidney tissue culture.

Diagnosis can also be made by significant rise between acute and convalescent phase titers in serum mumps immunoglobulin G (IgG) antibody level using any standard serologic assay or positive serologic test for mumps immunoglobulin M (IgM) antibody. Interpretation of titer rise may have limitations because of mumps cross-reaction with parainfluenza viruses.

Serum amylase is elevated in mumps parotitis and pancreatitis. Serum lipase is elevated in pancreatitis.

CBC indicates a normal or elevated WBC count with lymphocyte predominance.

Treatment

No antiviral agent is indicated for mumps, which is a self-limited disease.

Outcomes

Orchitis (usually unilateral) has been reported as a complication in 20-30% of clinical mumps cases in postpubertal males. Some testicular atrophy occurs in about 35% of cases of mumps orchitis, but sterility rarely occurs.

Acute uncomplicated UTIs in men

Typically newborn, children or elderly males with UT abnormalities

UTI in male aged 15-50 rare (~6 per 10,000 males aged 21-50)

Aetiology

Urinary tract abnormality – up to 25%

Anal intercourse

? intercourse with female with UTI

? uncircumcised state

~90% of men with febrile UTI have concomitant prostatitis

Overall E coli only accounts for ~25% of all male UTIs, but ~90% of uncomplicated cystitis

Investigation recommended for all men

7-10 days recommended for UTI

6 weeks recommended when prostate involvement suspected

Quinolones drugs of choice